



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Crash Data Researchers/Users:

Thank you for choosing crash data from the National Highway Traffic Safety Administration (NHTSA) for your research or other use. The information contained in this motor vehicle crash report is collected, maintained and distributed in accordance with Public Law 89-564. In accordance with this Public Law, NHTSA is required not to release any case information until completion of quality control procedures. These procedures include a review of the case material to extract all names, licenses and registration numbers, non-coded interview material, non-research related researcher comments in the margins, non-factual data, and the production number portion of the vehicle identification number (VIN).

If you requested NHTSA to query its database files in order to identify a specific crash, then that query was made using non-personal descriptors you provided for use in our search. This motor vehicle crash may have been identified from a data search and matches the general, non-personal descriptors you provided, but we cannot confirm that this is the specific crash report you requested.

If you have any questions with regard to the above procedures, please contact the Field Operations Branch, Crash Investigation Division, National Center for Statistics and Analysis at 202-366-4820. Again, please be advised that we cannot confirm that this is the case that you have specifically requested nor can we certify the information to be correct.

*** *** ***



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Wash. D.C. Area 366-0123

FRANKLIN RESEARCH CENTER

Division of Arvin/Calspan
[REDACTED] New York 14225

FRC ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CASE NO. 90-13

FLEET - 1988 ACURA LEGEND

LOCATION - [REDACTED] NY

ACCIDENT DATE - [REDACTED] 1990

Contract No. DTNH22-87-C-07169

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

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The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 90-14		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle FRC On-Site Air Bag Deployment Investigation Fleet - 1988 Acura Legend Location - [REDACTED] NY				5. Report Date [REDACTED] 1990	
				6. Performing Organization Code	
7. Author(s) Accident Research Section				8. Performing Organization Report No.	
9. Performing Organization Name and Address Franklin Research Center Accident Research Section P.O. Box 400 Buffalo, New York 14225				10. Work Unit No. [REDACTED]	
				11. Contract or Grant No. DTNH22-87-C-07169	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Washington, D.C. 20590				13. Type of Report and Period Covered Technical Report Accident Date [REDACTED] 90	
				14. Sponsoring Agency Code	
15. Supplementary Notes On-site investigation of an intersection type crash that involved a 1988 Acura Legend. The impact deployed the vehicle's driver air bag system.					
16. Abstract The full frontal area of the Acura Legend impacted the right side of a Nissan Maxima at a four-leg intersection. The Acura sustained a velocity change of 12.3 mph (longitudinal component of -10.6 mph) from the 11 o'clock impact force which was sufficient to deploy the vehicle's driver air bag system. The belted driver of the Acura loaded the active belt webbing and the deployed air bag. Her facial contact with the air bag displaced her eyeglasses which resulted in superficial lacerations of the bridge of her nose and of the left eyebrow area. The air bag also abraded her mid forehead area. The driver was admitted (overnight) to a [REDACTED] for observation of a mild concussion that resulted from the bag contact and the impact force.					
17. Key Words Frontal impact Sufficient longitudinal deceleration Air bag				18. Distribution Statement General Public	
19. Security Classif. (of this report) None		20. Security Classif. (of this page) None		21. No. of Pages 17	
				22. Price	

FRANKLIN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

FRC CASE NO. 90-13

FLEET - 1988 ACURA LEGEND
LOCATION - [REDACTED] NY

SUMMARY

This crash occurred at a major four-leg intersection on [REDACTED] 1990, at 1344 hours. A 1988 Acura Legend LS, 4 dr. sedan, entered the intersection against a red signal phase and impacted the right side area of a 1985 Nissan Maxima as it was proceeding through the intersection. The crash resulted in a 11 o'clock/02 o'clock impact configuration with the Acura sustaining a velocity change of 12.3 mph (longitudinal component of -10.6 mph). The impact induced deceleration was sufficient to deploy the vehicle's driver air bag system.

The driver of the Acura was a 52 year old female, 62", 120 lbs. She was wearing the active 3-point lap and shoulder belt system. At impact she initiated a forward trajectory and loaded the active belt webbing and the deployed air bag. Her facial contact with the air bag resulted in an abrasion of her forehead (AIS-1). The bag displaced her eyeglasses which resulted in superficial lacerations (AIS-1) of the bridge of her nose and of the left eyebrow. The impact force and subsequent restraint loading produced a mild concussion (AIS-2). A make-up transfer evidenced her contact area with the air bag.

The driver was removed from the vehicle by rescue personnel and transported to a [REDACTED] [REDACTED] where she was admitted (overnight) for observation. Both vehicles sustained disabling damage and were towed from the scene. The occupants of the Nissan were not injured.

FRANKLIN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

FRC CASE NO. 90-13

FLEET - 1988 ACURA LEGEND
LOCATION - [REDACTED] NY
ACCIDENT DATE - [REDACTED] 1990

ACCIDENT DATA

Location/Street: Major four leg intersection
City/Township: [REDACTED] NY
Area/Type: Urban/Commercial
Accident Date/Time: [REDACTED] 1990, 1344 hours
Investigating Police Agency: [REDACTED] Police Dept.
Accident Type: Car/Car, front to side impact configuration
Air Bag Vehicle Occupant Injury Severity: Moderate (AIS-2)

AMBIENCE

Light Conditions: Daylight
Weather: Cloudy
Precipitation: None
Road Surface: Dry

HIGHWAY

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Location:	Major arterial	Major arterial
Number of Lanes:	4	4
Surface:	Asphalt	Asphalt
Vertical Alignment:	Level	Level
Horizontal Alignment:	Straight	Straight
Traffic Density:	Moderate	Moderate

HIGHWAY (CONT'D.)

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Speed Limit:	35 mph	35 mph
Traffic Controls:	On-colors, pre-timed, overhead signal system	On-colors, pre-timed overhead signal system

VEHICLES

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Year:	1988	1985
Make:	Acura	Nissan
Model:	Legend LS	Maxima
Body Style:	4 dr. sedan	4 dr. sedan
V.I.N.:	JH4KA4662JC (production number deleted)	JN1HU01S1ET (production number deleted)
Mileage:	36,581.7	76,020
Windshield Damage/Source:	No windshield damage	None
Fleet:	Acura	
Tow Status:	Towed due to damage	Towed due to damage
Reported Defects:	None	
Previous Repairs:	None	

VEHICLE DAMAGEDeployment Impact

The frontal area of the Acura Legend impacted the right side of vehicle #2. Maximum crush was 15.5" located on the front bumper at the right corner. Direct contact damage was 62.5" in length and extended across the entire frontal plane. Crush values at bumper level were as follows: C₁=1.5", C₂=2.5", C₃=5.5", C₄=7.625", C₅=9.5", C₆=15.5".

Components damaged by the impact included the front bumper, grille, hood, radiator support panel, both front fenders, and the front unibody chassis.

The right side of the Nissan Maxima sustained moderate damage from its impact with the Acura. Maximum crush was 8.5" located at the mid-point on the right rear door. Direct contact damage began at the right rear bumper corner and extended 85" forward. Crush values at the mid door level were as follows: C₁=0", C₂=2.0", C₃=2.375", C₄=8.5", C₅=6.5", C₆=0.0".

The impact fractured the right rear axle and separated the wheel assembly from the vehicle.

VEHICLE DAMAGE (CONT'D.)

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
CDC:	11-FDEW-2	02-RZEW-3
Repair Cost:	\$8500.00	Total loss

Interior (Air
Bag Vehicle):

The interior of the Acura Legend was not damaged or reduced in size by component intrusion. The driver loaded the deployed air bag and deposited a make-up transfer (1" in diameter) 9" above the horizontal centerline of the bag and 1.5" left of the vertical centerline. Blood stains were also noted to the right lower quadrant of the bag.

AIR BAG SYSTEM

The Acura Legend was equipped with a driver air bag system that deployed as a result of the frontal impact sequence. The deployed air bag measured approximately 24" in diameter and was vented through two ports that were 1.25" in diameter located on the back (module) side of the air bag. The bag did not have an internal tether strap and was stitched together with an internal seam. There were no tears or apparent flaws in the bag material.

The air bag was stamped with the following identification number:

SRS TAKATA
MODEL NO.

MFG DATE

The inflator module was identified by the following sequence.

AIR CUSHION INFLATOR

P/N
S/N
LOT NO. (BAR CODED)
DATE OF MFG. /87
PATENT NO.

DEFENSE SYSTEMS

VEHICLE VELOCITY ESTIMATES

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Travel Speed:	35 mph (driver estimate)	35 mph
Impact Speed:	Unknown	Unknown
Total ΔV :	12.3 mph	12.3 mph
Longitudinal ΔV :	-10.6 mph	- 6.1 mph
Lateral ΔV :	6.1 mph	-10.6 mph

COLLISION SEQUENCE

Pre-Crash: The 1988 Acura Legend LS was proceeding in a westerly direction on the major arterial roadway at a driver estimated speed of 35 mph. As she approached a four leg intersection, she failed to detect the red signal phase and entered the intersection.

Vehicle #2 was traveling in a northerly direction on the intersecting roadway and entered the intersection on a green signal phase, crossing the air bag vehicle's path of travel.

Crash: The full frontal area of the Acura impacted the right side area of the Nissan. Resultant directions of force were 11 o'clock for the Acura and 02 o'clock for vehicle #2. Velocity changes were computed at 12.3 mph (longitudinal component of -10.6 mph) for the Acura and 12.3 mph for vehicle #2 using the damage mode of the CRASHPC program. The impact induced deceleration was sufficient to deploy the Acura's driver air bag system.

The belted driver of the Acura was a 52 year old female, 62", 120 lbs. She initiated a forward trajectory in response to the 11 o'clock impact force and loaded the active belt webbing and the deployed air bag. The air bag loading displaced her eyeglasses which resulted in superficial lacerations of the bridge of the nose and of the left eyebrow area. The air bag also abraded the mid forehead area of the driver. The impact force and air bag loading resulted in a mild concussion with no reported loss of consciousness. The driver rebounded into the left front seatback where she came to rest.

Post-Crash: The involved vehicles came to rest near the point of impact. At rest, the Acura was facing in a northwesterly direction while vehicle #2 was facing in a northeasterly direction.

The driver of the Acura remained in her vehicle and was removed on a backboard by rescue personnel. She was transported by ambulance to a [REDACTED] where she was admitted (overnight) for observation.

COLLISION SEQUENCE (CONT'D.)

Post-Crash
(Cont'd.):

Following the police investigation, both vehicles were
towed from the scene.

DRIVER DATA

	<u>Air Bag Vehicle</u>	<u>Vehicle #2</u>
Age:	53	29
Sex:	Female	Male
Height:	62"	
Weight:	120 lbs.	
Active Restraint System Usage:	3-point lap and shoulder belt	
Usage Source:	Vehicle inspection, police report, driver interview	
Eyeglasses:	Prescription plastic framed glasses, deformed by air bag contact, remained on driver's face	
Vehicle Familiarity:	1 year	
Route Familiarity:	Weekly	
Trip Plan:	Returning to residence	
Manner of Leaving Scene:	Ambulance	
Type of Medical Treatment:	Transported to [REDACTED] [REDACTED] where she was admitted overnight for observation	None, not injured

DRIVER INJURIES

<u>Injury</u>	<u>Severity</u>	<u>Source</u>
Concussion, no loss of consciousness	Moderate (AIS-2)	Air bag/impact force
Superficial laceration of the bridge of the nose	Minor (AIS-1)	Air bag/eyeglasses
Superficial laceration of the left eyebrow area	Minor (AIS-1)	Air bag/eyeglasses
Abrasion of the mid forehead	Minor (AIS-1)	Air bag

SELECTED PRINTS



Frontal View Of The Acura Legend.



Left Front Three-Quarter View.

3.



Right Frontal Three-Quarter View.

4.



Perpendicular View Of The Frontal Plane Showing The Extent Of Crush.

5.



Longitudinal View Showing The Lateral Displacement Of The Frontal Plane.

6.



Overall Interior View And The Deployed Air Bag.



Driver Facial Contact (Makeup Transfer) To The Left Upper Quadrant
The Air Bag.

SLIDE INDEX

<u>Slide No(s).</u>	<u>Description</u>
1	Driver injury mannequin
2	Frontal view of the Acura
3,4	Longitudinal views showing the lateral displacement of the frontal plane
5	Left front three-quarter view
6	Perpendicular view of the frontal plane
7	Left side view
8,9	Rear three-quarter views
10	Right side view
11	Perpendicular view of the right frontal area showing the extent of crush
12	Right front three-quarter view
13	Overall view of the interior and of the driver air bag
14	View across the interior from the left door area
15	Make-up transfer to the upper left quadrant of the air bag
16	Air bag identification numbers
17	Blood stains on air bag
18	Venting ports on back side of bag
19	SRS warning label
20	Knee bolster, no evidence of contact
21-23	Interior views from the rear seat area
24	Driver's seated position and belt system
25	V.I.N. plate
26-29	Right side views of vehicle #2
30	Longitudinal view showing the extent of crush
31	Left rear three-quarter view

IDENTIFICATION CARD

NAME: [REDACTED]
[REDACTED]
[REDACTED]

PHYSICAL DESCRIPTION

SEX: [REDACTED]
AGE: [REDACTED]
HT: [REDACTED]
WT: [REDACTED]

IDENTIFICATION CARD

NAME: [REDACTED]
[REDACTED]
[REDACTED]

PHYSICAL DESCRIPTION

SEX: [REDACTED]
AGE: [REDACTED]
HT: [REDACTED]
WT: [REDACTED]

AGE 34
SEX Male
WT 175
HT 5'10"





CA9013 #2



CA9013 #3



CA9013 #4



CA9013 #5



CA9013 #6



CA9013 #7



CA 9013 #8



CA9013 #9



CA9013 #10



CA9013 #11



CA9013 #12



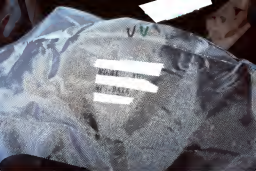
CA 9013 #13
Best Available



CA9013 #14



CA9013 #15



CA9013 #16



CA9013 #17



CA9013 #18



CA9013 #19



CA9013 #20



CA9013 #21
Best Available



CA 9013 #22
Best Available



CA 9013 #23



CA9013 #24





CA9013 #28



CA9013 #27



CA9013 #28



CA 9013 #29



CA 9013 #30



CA9013 #31

APPENDIX A

Police Accident Report

DMV COPY

(3)(A) 40

Page 1 of 1 Pages
Local Codes

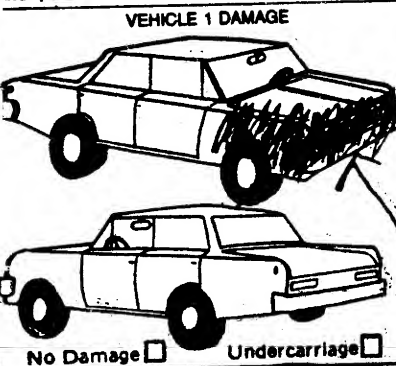
Accident Date: 90 MO 1:44 AM
No. of Vehicles: 2
No. Injured: 3
No. Killed: 0
Non-Highway: ☐
Not Investigated at Scene: ☐
Left Scene: ☐
Police Photos: ☒ Yes ☐ No

Vehicle 1 Name: [REDACTED]
Number and Street: [REDACTED]
City: [REDACTED] State: [REDACTED] Zip Code: [REDACTED]
Date of Birth: [REDACTED] Sex: M Un-Licensed: ☐ No. of Occup.: 2 Public Property Damaged: ☐
State of License: NY
Date of Birth: [REDACTED] Sex: M Un-Licensed: ☐ No. of Occup.: 2 Public Property Damaged: ☐
State of License: NY
Name: [REDACTED]
Number and Street: [REDACTED] City: [REDACTED] State: [REDACTED] Zip Code: [REDACTED]

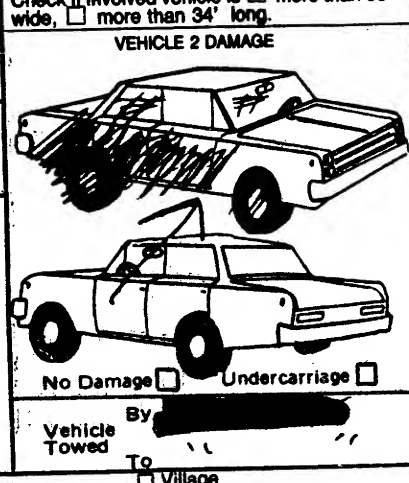
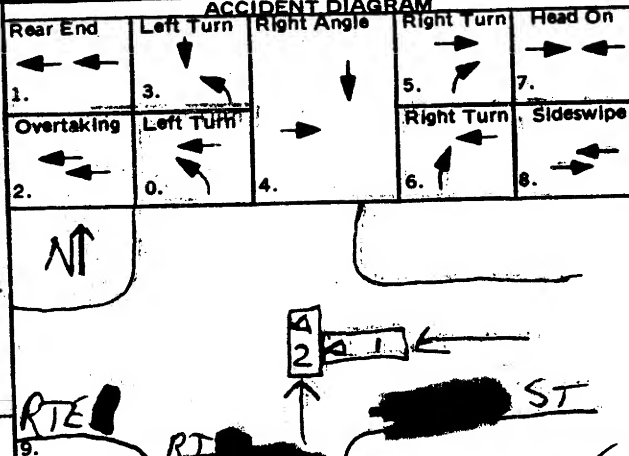
Vehicle 2 Name: [REDACTED]
Number and Street: [REDACTED]
City: [REDACTED] State: [REDACTED] Zip Code: [REDACTED]
Date of Birth: [REDACTED] Sex: M Un-Licensed: ☐ No. of Occup.: 2 Public Property Damaged: ☐
State of License: NY
Name: [REDACTED]
Number and Street: [REDACTED] City: [REDACTED] State: [REDACTED] Zip Code: [REDACTED]

Plate Number: [REDACTED] State of Reg.: NY Yr. & Vehicle Make: 89 ACURA 40S
Plate Number: [REDACTED] State of Reg.: NY Yr. & Vehicle Make: 87 DATSUN 40S

Check if involved vehicle is ☐ more than 95" wide, ☐ more than 34' long.



No Damage ☐ Undercarriage ☐
Vehicle Towed To: [REDACTED]



No Damage ☐ Undercarriage ☐
Vehicle Towed To: [REDACTED]

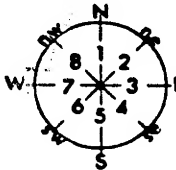
Reference Marker: 5 3 0 2
4 0 0 0
Ticket/Arrest: ☐ Other: ☐
Violation Section(s): [REDACTED]
Accident Description/Officer's Notes: [REDACTED]

VEHICLE ONE WAS WEST BOUND ON RTE., PASSED THROUGH THE RED LIGHT AT [REDACTED] AVE., COLLIDING WITH NORTH BOUND VEHICLE TWO. DRIVER ONE STATED SHE HAD TAKEN PRESCRIPTION MEDICINE I THINK CARBONATE EARLIER IN THE DAY.
WITNESSES: [REDACTED]

8	9	10	11	12	13	14	15	16	17	18	Names - If Deceased, Give Date of Death
1	1	4	1	53	F	1	4	6	[REDACTED]	[REDACTED]	
2	1	4	1	29	M	1	4	6	[REDACTED]	[REDACTED]	
2	3	4	1	21	F			6	[REDACTED]	[REDACTED]	

Officer's Rank and Name: [REDACTED]
Badge No.: [REDACTED]
Department: [REDACTED]
Precinct/Post Troop/Zone: [REDACTED]
Station/Beat/Sector: [REDACTED]
Reviewing Officer: [REDACTED]
Date/Time Reviewed: [REDACTED]

PEDESTRIAN/BICYCLIST LOCATION 1. Pedestrian/Bicyclist at Intersection 2. Pedestrian/Bicyclist Not at Intersection PEDESTRIAN/BICYCLIST ACTION 1. Crossing, With Signal 2. Crossing, Against Signal 3. Crossing, No Signal, Marked Crosswalk 4. Crossing, No Signal or Crosswalk 5. Riding/Walking Along Highway With Traffic 6. Riding/Walking Along Highway Against Traffic 7. Emerging from in Front of/Behind Parked Vehicle 8. Going To/From Stopped School Bus 9. Getting On/Off Vehicle Other Than School Bus 10. Pushing/Working On Car 11. Working in Roadway 12. Playing in Roadway 13. Other Actions in Roadway* 14. Not in Roadway (Indicate)* TRAFFIC CONTROL 1. None 2. Traffic Signal 3. Stop Sign 4. Flashing Light 5. Yield Sign 6. Officer/Guard 7. No Passing Zone 8. RR Crossing Sign 9. RR Crossing Flashing Lt. 10. RR Crossing Gates 11. Stopped School Bus - Red Lights Flashing 12. Highway Work Area 20. Other*	APPARENT CONTRIBUTING FACTORS HUMAN 2. Alcohol Involvement 3. Backing Unsafely 4. Driver Inattention (Indicate)* 5. Driver Inexperience (Indicate)* 6. Drugs (Illegal) 7. Failure to Yield Right-of-Way 8. Fell Asleep 9. Following Too Closely 10. Illness 11. Lost Consciousness 12. Passenger Distraction 13. Passing or Lane Usage Improper 14. Pedestrian's/Bicyclist's Error/Confusion 15. Physical Disability 16. Prescription Medication 17. Traffic Control Disregarded 18. Turning Improperly 19. Unsafe Speed 20. Unsafe Lane Changing 40. Other Human* VEHICULAR 41. Accelerator Defective 42. Brakes Defective 43. Headlights Defective 44. Other Lighting Defects 45. Oversized Vehicle 46. Steering Failure 47. Tire Failure/Inadequate 48. Tow Hitch Defective 49. Windshield Inadequate 60. Other Vehicular* ENVIRONMENTAL 61. Animal's Action 62. Glare 63. Lane Marking Improper/Inadequate 64. Obstruction/Debris 65. Pavement Defective 66. Pavement Slippery 67. Shoulders Defective/Improper 68. Traffic Control Device Improper/Non-Working 69. View Obstructed/Limited 80. Other Environmental*	<div style="text-align: right;"> Vehicle 1 19 Vehicle 1 20 Vehicle 2 21 Vehicle 2 22 Vehicle 1 23 Vehicle 2 24 Vehicle 1 25 Vehicle 2 26 First Event 28 Vehicle 1 29 Vehicle 2 30 COVER SHEET F </div>
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LIGHT CONDITIONS 1. Daylight 2. Dawn 3. Dusk 4. Dark-Road Lighted 5. Dark-Road Unlighted ROADWAY CHARACTER 1. Straight and Level 2. Straight and Grade 3. Straight at Hillcrest 4. Curve and Level 5. Curve and Grade 6. Curve at Hillcrest ROADWAY SURFACE CONDITION 1. Dry 2. Wet 3. Muddy 4. Snow/Ice 5. Slush 0. Other* WEATHER 1. Clear 2. Cloudy 3. Rain 4. Snow 5. Sleet/Hail/Freezing Rain 6. Fog/Smog/Smoke 0. Other* WHICH VEHICLE OCCUPIED 1. Vehicle No. 1 B. Bicyclist O. Other* 2. Vehicle No. 2 P. Pedestrian POSITION IN/ON VEHICLE 1. Driver 2-7. Passengers 8. Riding/Hanging On Outside SAFETY EQUIPMENT USED 1. None 2. Lap Belt 3. Harness 4. Lap Belt and Harness 5. Child Restraint 6. Helmet 0. Other* EJECTION FROM VEHICLE 1. Not Ejected 2. Partially Ejected 3. Ejected <div style="display: flex; justify-content: space-between;"> <div> AGE 12 </div> <div> SEX 13 </div> </div>	<div> State of New York Department of Motor Vehicles POLICE ACCIDENT REPORT MV-104A (8-87) </div> <hr/> <p>* EXPLAIN IN ACCIDENT DESCRIPTION</p> <p>IF A QUESTION DOES NOT APPLY, ENTER A DASH (—).</p> <p>IF AN ANSWER IS UNKNOWN, ENTER AN "X".</p>	DIRECTION OF TRAVEL  PRE-ACCIDENT VEHICLE ACTION 1. Going Straight Ahead 2. Making Right Turn 16. Making Right Turn on Red 3. Making Left Turn 17. Making Left Turn on Red 4. Making U Turn 5. Starting from Parking 6. Starting in Traffic 7. Slowing or Stopping 8. Stopped in Traffic 9. Entering Parked Position 10. Parked 11. Avoiding Object in Roadway 12. Changing Lanes 13. Overtaking 14. Merging 15. Backing 20. Other* LOCATION OF FIRST EVENT 1. On Roadway 2. Off Roadway TYPE OF ACCIDENT COLLISION WITH 1. Other Motor Vehicle 2. Pedestrian 3. Bicyclist 4. Animal 5. Railroad Train 10. Other Object (Not Fixed)* COLLISION WITH FIXED OBJECT 11. Light Support/Utility Pole 12. Guide Rail 13. Crash Cushion 14. Sign Post 15. Tree 16. Building/Wall 17. Curbing 18. Fence 19. Bridge Structure 20. Culvert/Head Wall 21. Median/Barrier 22. Snow Embankment 23. Earth Embankment/Rock Cut/Ditch 24. Fire Hydrant 30. Other Fixed Object* NON-COLLISION 31. Overturned 32. Fire/Explosion 33. Submersion 34. Ran Off Roadway Only 40. Other*
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LOCATION OF MOST SEVERE PHYSICAL COMPLAINT 1. Head 2. Face 3. Eye 4. Neck 5. Chest 6. Back 7. Shoulder-Upper Arm 8. Elbow-Lower Arm-Hand 9. Abdomen - Pelvis 10. Hip-Upper Leg 11. Knee-Lower Leg-Foot 12. Entire Body TYPE OF PHYSICAL COMPLAINT 1. Amputation 2. Concussion 3. Internal 4. Minor Bleeding 5. Severe Bleeding 6. Minor Burn 7. Moderate Burn 8. Severe Burn 9. Fracture - Dislocation 10. Contusion - Bruise 11. Abrasion 12. Complaint of Pain 13. None Visible VICTIM'S PHYSICAL AND EMOTIONAL STATUS 1. Apparent Death 2. Unconscious 3. Semiconscious 4. Incoherent 5. Shock 6. Conscious	<div style="text-align: center;"> INJURED TAKEN 17 BY TO 18 </div>	<div style="text-align: right;"> Vehicle 1 19 Vehicle 1 20 Vehicle 2 21 Vehicle 2 22 Vehicle 1 23 Vehicle 2 24 Vehicle 1 25 Vehicle 2 26 First Event 28 Vehicle 1 29 Vehicle 2 30 COVER SHEET F </div>
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APPENDIX B

CRASHPC Output

SUMMARY OF CRASHPC RESULTS (USING SPINOUT)

CRASH3 RECONSTRUCTION

SPEED CHANGE (DAMAGE)	VEH #1	TOTAL (MPH)	LONG. (MPH)	LAT. (MPH)	ANG. (DEG)
	VEH #1	12.3	-10.6	6.1	-30.0
	VEH #2	12.3	-6.1	-10.6	60.0

ENERGY DISSIPATED BY DAMAGE VEH#1: 37727.8 FT-LB VEH#2: 20125.0 FT-LB

SUMMARY OF DAMAGE DATA VEHICLE # 1

TYPE-----CATEGORY 3
 STIFFNESS---CATEGORY 9
 WEIGHT----- 3220.0 LBS.
 CDC-----11FDEW2
 L----- 62.0 IN.
 C1----- 1.5 IN.
 C2----- 2.5 IN.
 C3----- 5.5 IN.
 C4----- 7.6 IN.
 C5----- 9.5 IN.
 C6----- 15.5 IN.
 D----- .0
 RHO----- 1.00 *
 ANG----- 330.0 DEG. *
 D'----- 9.9 IN.

(* INDICATES DEFAULT VALUE) VEHICLE # 2

TYPE-----CATEGORY 3
 STIFFNESS---CATEGORY 3
 WEIGHT----- 3230.0 LBS.
 CDC-----02RZEWS
 L----- 85.0 IN.
 C1----- 3.0 IN.
 C2----- 4.5 IN.
 C3----- 4.4 IN.
 C4----- 9.3 IN.
 C5----- 7.0 IN.
 C6----- .0 IN.
 D----- -40.7
 RHO----- 1.00 *
 ANG----- 60.0 DEG. *
 D'----- -38.8 IN.

DIMENSIONS AND INERTIAL PROPERTIES

A1	=	51.3	IN.	A2	=	51.3	IN.
B1	=	55.5	IN.	B2	=	55.5	IN.
TR1	=	58.9	IN.	TR2	=	58.9	IN.
I1	=	27829.6	LB-SEC**2-IN	I2	=	27916.1	LB-SEC**2-IN
M1	=	8.372	LB-SEC**2/IN	M2	=	8.398	LB-SEC**2/IN
XF1	=	89.8	IN.	XF2	=	89.8	IN.
XR1	=	-106.4	IN.	XR2	=	-106.4	IN.
YS1	=	36.3	IN.	YS2	=	36.3	IN.

